



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/671,156	09/25/2003	Mingjie Ke	020569-03500 P(203-1335-U)	7041
54487	7590	06/06/2006	EXAMINER SUCHFIELD, GEORGE A	
JONES & SMITH, LLP THE RIVIANA BUILDING 2777 ALLEN PARKWAY, SUITE 800 HOUSTON, TX 77019-2141			ART UNIT 3676	
PAPER NUMBER				

DATE MAILED: 06/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/671,156

Applicant(s)

KE ET AL.

Examiner

George Sunfield

Art Unit

3676

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 May 2006.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15, 17-21, 23-25, 28-32, 35, 46, 49 and 53 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 8-15, 17-21, 23-25, 28-32, 35, 46, 49 and 53 is/are rejected.
- 7) ☒ Claim(s) 6 and 7 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of Refusal (PT O892)
- 2) ☐ Notice of Reasons for Patent Refusal (PT O948)
- 3) ☐ Information Disclosure Statement(s) (PT O1449 or PTO-808)
- 4) ☐ Interview Summary (PT O413)
- 5) ☐ Notice of Informal Patent Application (PT O152)
- 6) ☐ Other _____

Art Unit: 3676

1. Applicant's amendment after final, dated May 23, 2006, has been entered, however the finality of the previous Office action, dated February 23, 2006, is hereby withdrawn in favor of the following action, which is also made final.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. Claims 1-5, 8-12, 14, 15, 18 – 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Dawson et al (5,465,792).

With respect to claim 1: Dawson et al teaches in column 1, line 60 - column 3, line 5, a method for treating a wellbore, comprising pumping downhole a copolymer comprising: quaternary ammonium salt; and an acrylamide unit. Further with respect to claim 1, the recitation in claim 1 of “inhibiting or controlling inorganic scale formations in a subterranean formation or in a wellbore” has not been given patentable weight because the recitation occurs in the preamble. Similarly, the additional limitation in claim 1 of “wherein the inorganic scale formations are zinc sulfide or iron sulfide scale formations”, while further limiting the claim preamble, still do not further limit the actual positively-recited step(s) of the claim. In this regard, it is well settled that a preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). Otherwise, the only positively recited process step in claim 1 of “pumping downhole” the copolymer is clearly set forth in Dawson et al.

With respect to claims 2 – 5: Dawson et al teaches in column 2, line 54 - column 3, line 5 a method wherein the quaternary ammonium salt is dimethyldiallylammonium chloride or a polyepichlorohydrin quaternized with trialkyl amine.

With respect to claims 8 - 10: Dawson et al teaches in column 2, lines 62 - 65 a method wherein the acrylamide unit is acrylamide.

With respect to claim 11: Dawson et al teaches in column 6, lines 16 - 20 a method wherein the copolymer is pumped downhole as a component of a carrier fluid.

With respect to claims 12: Dawson et al teaches in column 3, lines 48 - 64 a method wherein the copolymer is pumped downhole as part of a brine.

With respect to claim 14: no patentable weight or significance is accorded to the term “fracturing” fluid, insofar as no actual step of fracturing the formation has been positively recited. Moreover, it is deemed that the well treatment composition of Dawson et al could function as a fracturing fluid, depending on the amount of pressure applied from the surface.

With respect to claim 15: Dawson et al teaches in column 3, lines 48 - 64 a method wherein the copolymer is pumped downhole as a component of an acidizing fluid.

With respect to claims 18 and 19: Dawson et al teaches in column 5, lines 2 - 13 a method wherein the molar ratio of acrylamide unit:diallyldimethylammonium salt is from about 1:1 to about 3:1.

With respect to claims 20 and 21: Dawson et al teaches in column 2, line 54 - column 3, line 5 a method wherein the copolymer further comprises an acrylic acid unit. Additionally, the reference teaches a method wherein the acrylic acid unit is acrylic acid,

Art Unit: 3676

(meth)acrylic acid or a salt thereof.

3. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dawson et al in view of Brookey et al (6,123,159).

With respect to claim 13: Dawson et al teaches the features as previously claimed except for wherein the brine carrier fluid comprises contains calcium bromide, zinc bromide, calcium chloride, sodium bromide or a combination thereof. Brookey et al teaches in column 3, lines 43 - 51 a method wherein the brine carrier fluid comprises contains calcium bromide, zinc bromide, calcium chloride, sodium bromide or a combination thereof.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Dawson et al's invention by using calcium bromide, zinc bromide, calcium chloride, sodium bromide or a combination thereof in the brine carrier fluid in view of Brookey et al. The motivation for this combination is that these are common salts used in brines.

4. Claims 17, 23-25, 28-31, 35, 46, 49 and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dawson et al in view of Weaver et al (4,532,052).

With respect to independent claims 17 and 23: Dawson et al teaches the features as previously claimed except for wherein the weight average molecular weight of the copolymer is between from about 500,000 to about 5,000,000 and wherein the copolymer is a block or random copolymer. Weaver et al teaches a method of treating a well and/or penetrated subterranean formation(s) utilizing a copolymer which may have a molecular weight between from about

Art Unit: 3676

500,000 to about 5,000,000 (note col. 6, lines 25-45) and may further be in the form of a random or block copolymer (note col. 12, lines 13-20)

Therefore, with respect to independent claim 17, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Dawson et al's invention by using the a copolymer where the average molecular weight of the copolymer is between from about 500,000 to about 5,000,000 in view of Weaver et al. The motivation for this combination is that copolymers at these molecular weights have unexpected stability and effectiveness.

Similarly, with respect to independent claim 23, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Dawson et al's invention by using a copolymer in the form of either a random or block copolymer, as taught by Weaver et al, based on the relative availability or cost effectiveness of such copolymer, compared to other commercially-available copolymers.

With respect to claims 24 and 25: Dawson as modified by Weaver et al (note col. 12, lines 3 – col. 57, line 65), further discloses the use of a copolymer comprising a random or block copolymer composed of units of acrylamide and diallyldimethylammonium salt, and optionally, acrylic acid or a sodium salt, thereof.

With respect to claim 28 : Dawson et al teaches in column 6, lines 16 - 20 a method wherein the copolymer is pumped downhole as a component of a carrier fluid.

With respect to claim 29: Dawson et al teaches in column 3, lines 48 - 64 a method wherein the copolymer is pumped downhole as part of a brine.

With respect to claim 30: no patentable weight or significance is accorded to the term “fracturing” fluid, insofar as no actual step of fracturing the formation has been positively recited. Moreover, it is deemed that the well treatment composition of Dawson et al, as modified by Weaver et al, could function as a fracturing fluid, depending on the amount of pressure applied from the surface.

With respect to claim 31: Dawson et al teaches in column 3, lines 48 - 64 a method wherein the copolymer is pumped downhole as a component of an acidizing fluid.

With respect to claim 35, Dawson et al teaches in column 5, lines 2 - 13 a method wherein the molar ratio of acrylamide unit:diallyldimethylammonium salt is from about 1:1 to about 3:1, and further teaches in column 2, line 54 - column 3, line 5 a method wherein the copolymer further comprises an acrylic acid unit. Additionally, the reference teaches a method wherein the acrylic acid unit is acrylic acid, (meth)acrylic acid or a salt thereof, in which case the overall disclosure of Dawson et al is deemed to encompass a 1:1:1 ratio of the three respective monomers.

With respect to claims 46 and 49: Dawson et al teaches in column 2, line 54 - column 3, line 5 a method wherein the quaternary ammonium salt is dimethyldiallylammonium chloride or a polyepichlorohydrin quaternized with trialkyl amine.

With respect to claim 53: Dawson et al teaches in column 3, lines 48 - 64 and column 6, lines 16 - 20 a method wherein the copolymer is pumped downhole as a component of a carrier fluid and/or as part of a brine.

5. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dawson

Art Unit: 3676

et al in view of Weaver, as applied to claim 17 above, and further in view of Reeves, III et al (4,630,679).

With respect to claim 32: Dawson et al, as modified by Weaver et al teaches the features as previously claimed except for wherein the copolymer is soluble in a brine having a density greater than or equal to 14.0 lb/gal. Reeves, III et al teaches in column 3, line 65- column 4, line 5 a method wherein the copolymer is soluble in a brine having a density greater than or equal to 14.0 lb/gal.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the process of Dawson et al by using a copolymer that is soluble in a brine having a density greater than or equal to 14.0 lb/gal in view of Reeves, III et al. The motivation for this combination is that this is a density range that general brines exhibit.

6. Applicant's arguments filed with the amendment have been fully considered but they are not persuasive.

Applicant's argument accompanying their amendment after final rejection that all the claims should now be in condition for allowance in view of the incorporation of the steps/features of claim 16 into claim 1, and the rewriting of claims 17 and 23 into independent form is not deemed persuasive insofar that these claims were inadvertently not included in the text of the action (and accordingly, a new final rejection is now set forth). In fact, only dependent claims 6 and 7 are deemed allowable, as specifically set forth in the previous Office action, and noted herein.

Art Unit: 3676

7. Claims 6 and 7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

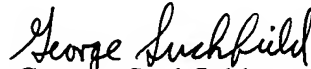
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to George Suchfield whose telephone number is 571-272-7036. The examiner can normally be reached on M-F (6:30 - 3:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Glessner can be reached on 571-272-6843. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3676

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


George Suchfield
Primary Examiner
Art Unit 3676

Gs
May 31, 2006